FIG. 1

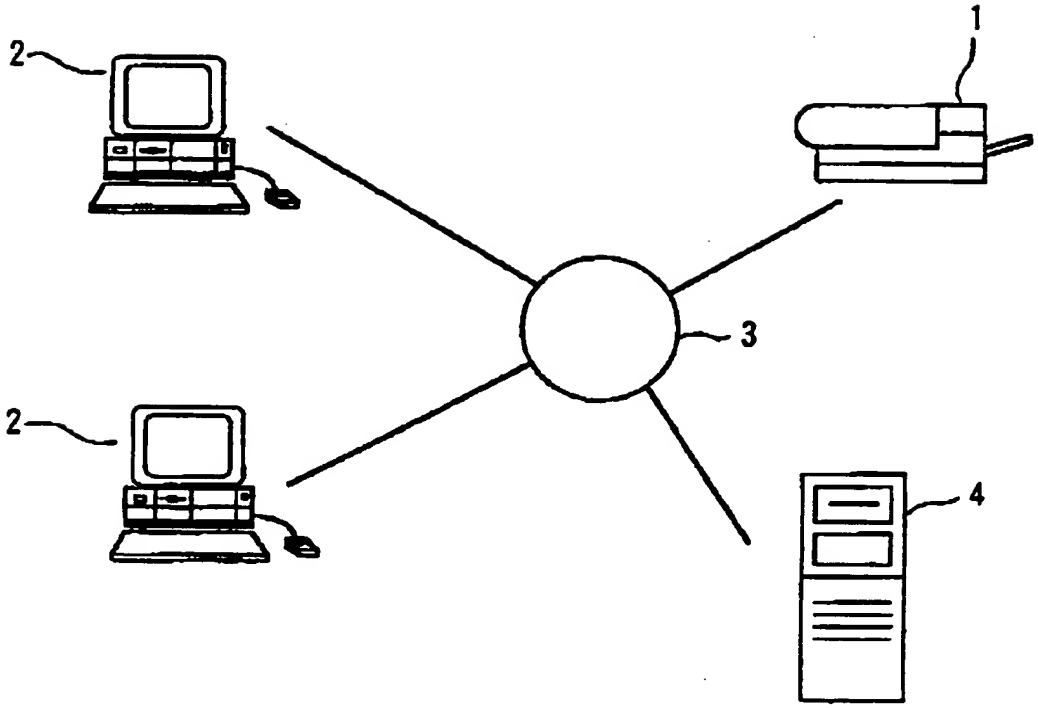

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FIG. 2

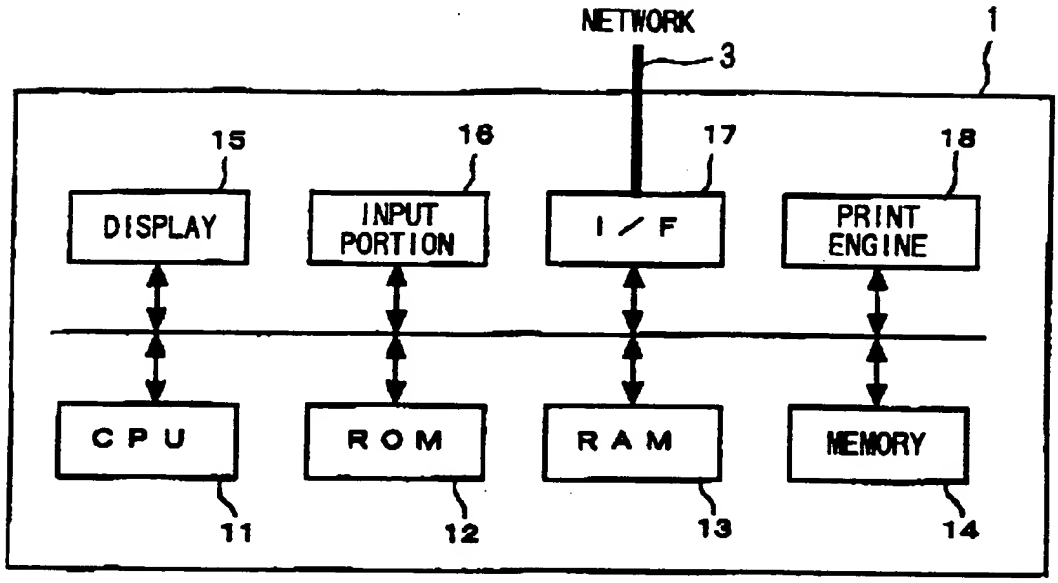
NETWORK
3
1
15
16
17
18
DISPLAY
INPUT PORTION
I / F
PRINT ENGINE
CPU
ROM
RAM
MEMORY
11
12
13
14

FIG. 3

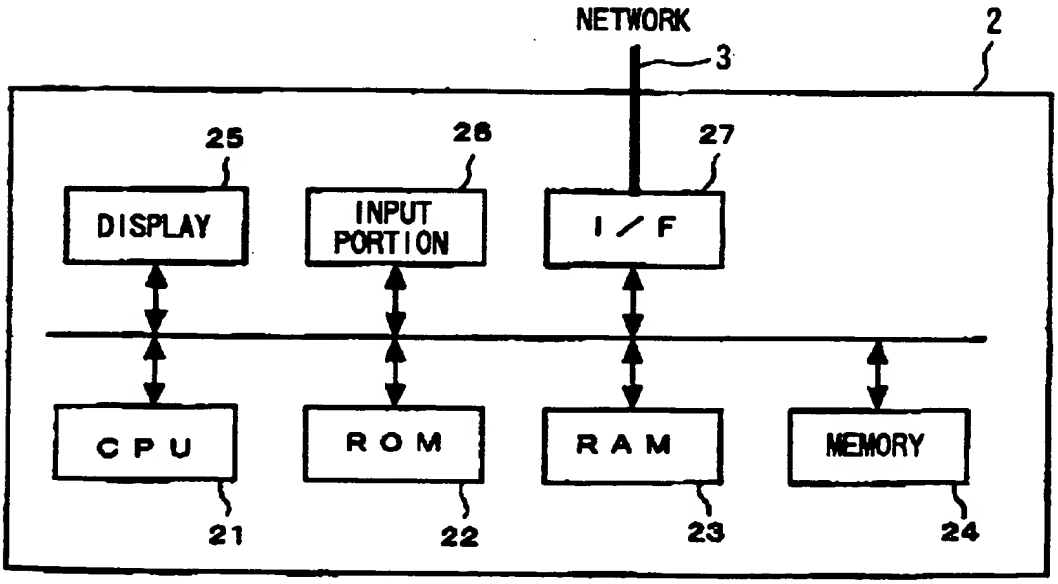
NETWORK
3
2
25
26
27
DISPLAY
INPUT PORTION
I / F
CPU
ROM
RAM
MEMORY
21
22
23
24

FIG. 4

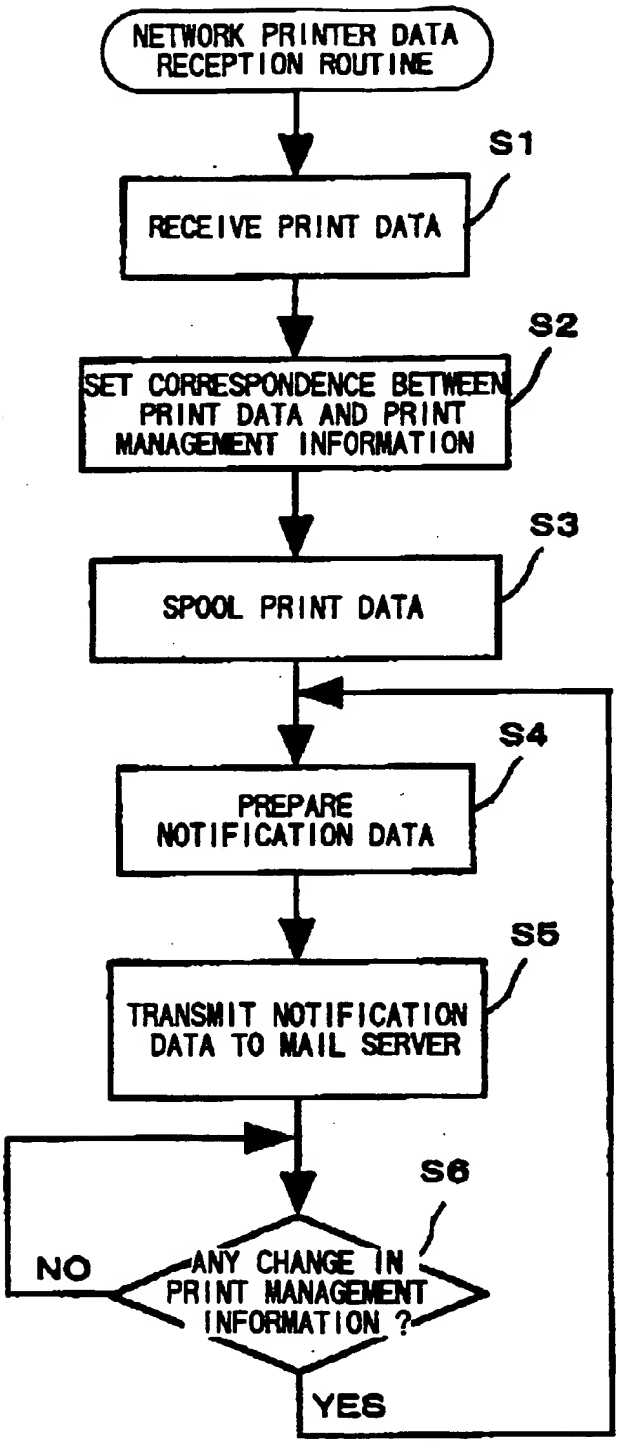
NETWORK PRINTER DATA RECEPTION ROUTINE
S1
RECEIVE PRINT DATA
S2
SET CORRESPONDENCE BETWEEN PRINT DATA AND PRINT MANAGEMENT INFORMATION
S3
SPOOL PRINT DATA
S4
PREPARE NOTIFICATION DATA
S5
TRANSMIT NOTIFICATION DATA TO MAIL SERVER
S6
ANY CHANGE IN PRINT MANAGEMENT INFORMATION ?
NO
YES

FIG. 5

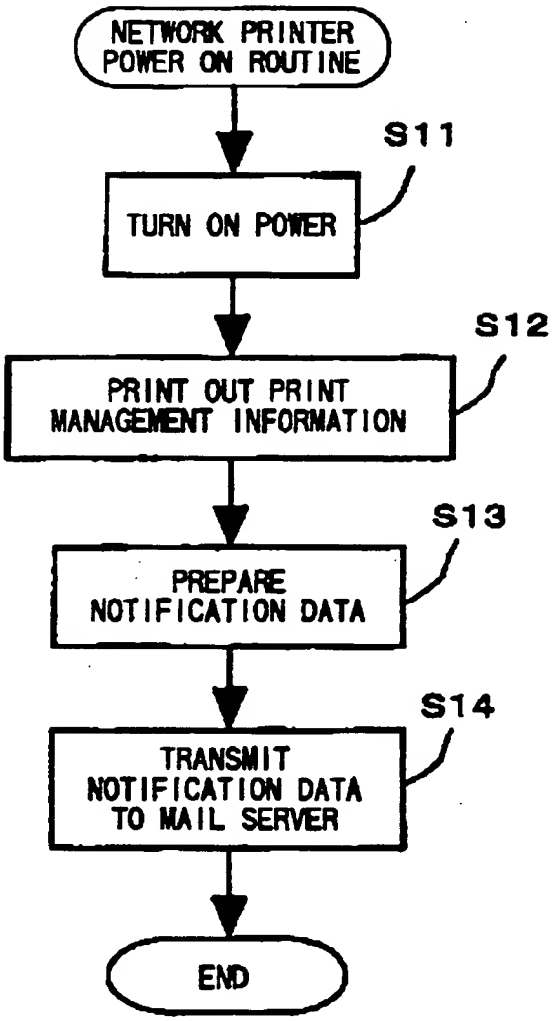

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FIG. 6

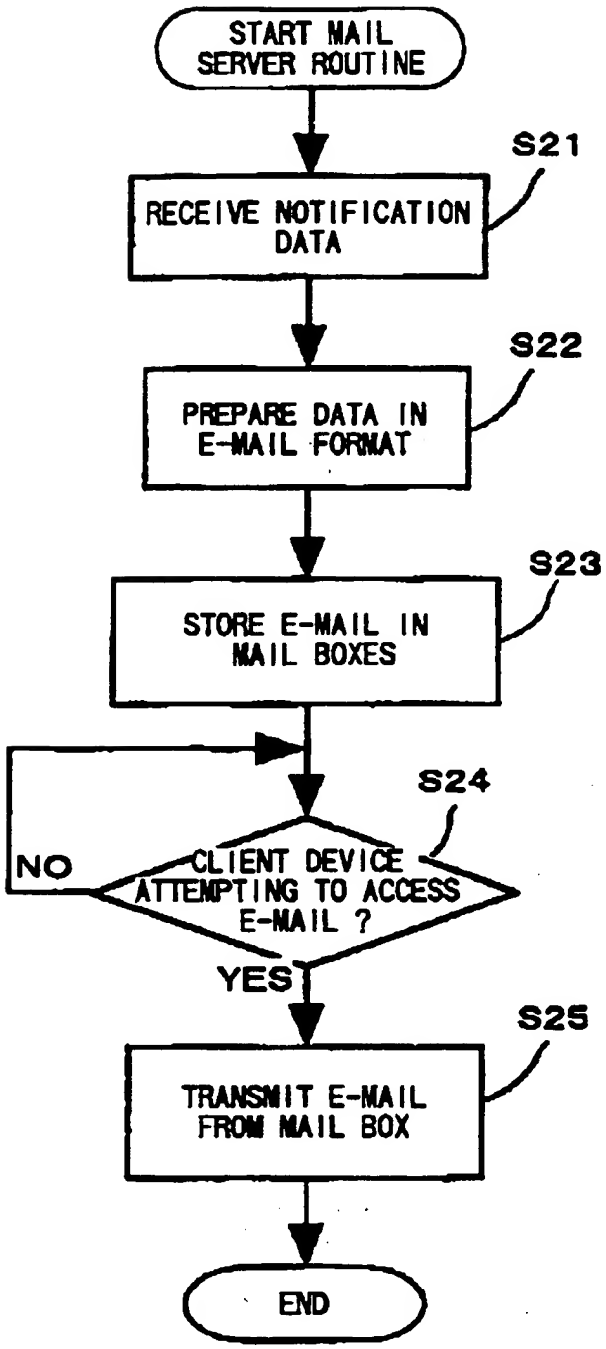
START MAIL SERVER ROUTINE
S21
RECEIVE NOTIFICATION DATA
S22
PREPARE DATA IN E-MAIL FORMAT
S23
STORE E-MAIL IN MAIL BOXES
S24
NO
CLIENT DEVICE ATTEMPTING TO ACCESS E-MAIL ?
YES
S25
TRANSMIT E-MAIL FROM MAIL BOX
END

FIG. 7

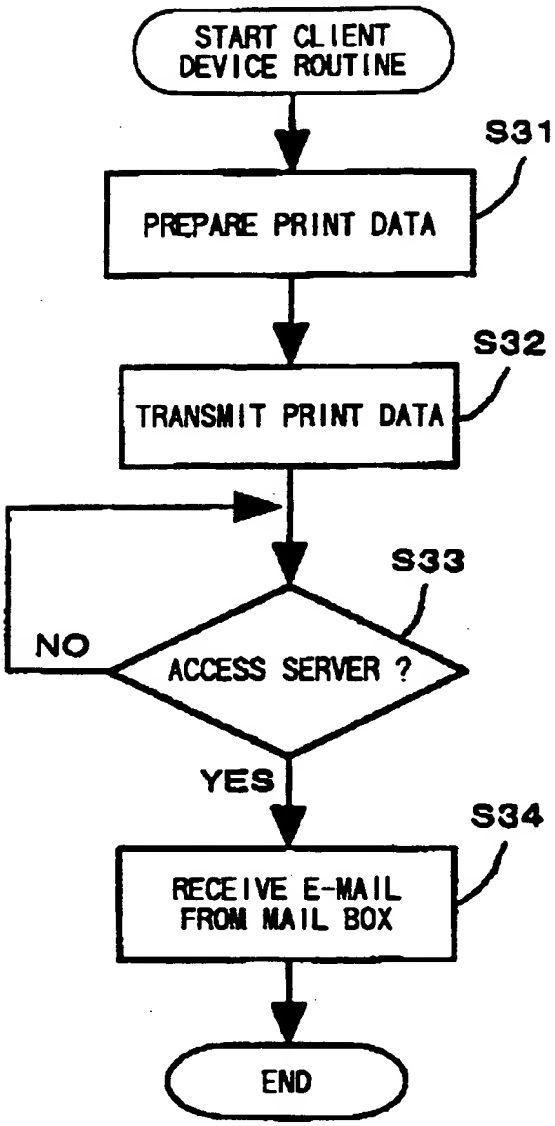

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FIG. 8

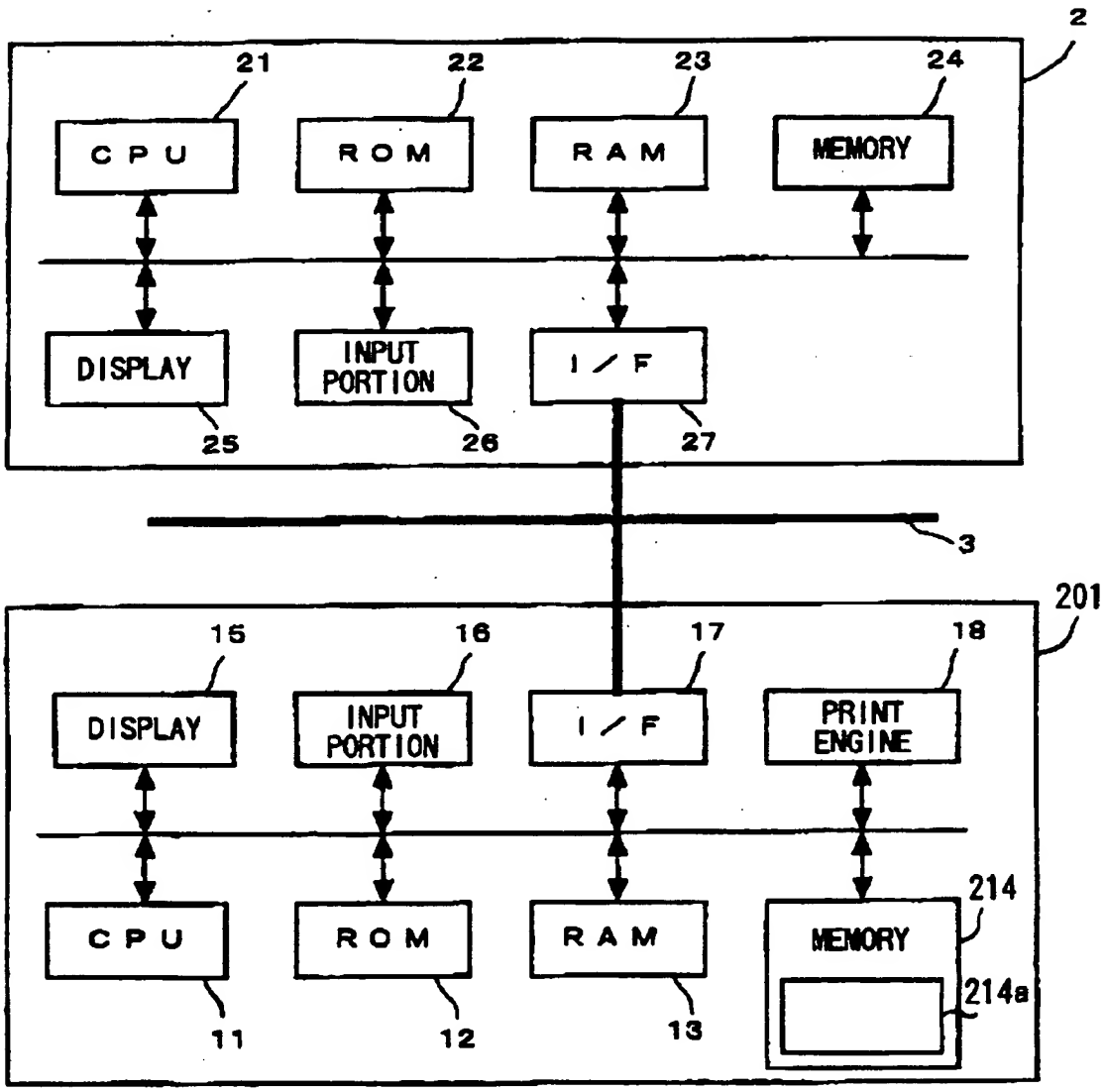
2
21
22
23
24
CPU
ROM
RAM
MEMORY
DISPLAY
INPUT PORTION
I/F
25
26
27
3
201
15
16
17
18
DISPLAY
INPUT PORTION
I/F
PRINT ENGINE
214
CPU
ROM
RAM
MEMORY
214a
11
12
13

FIG. 9

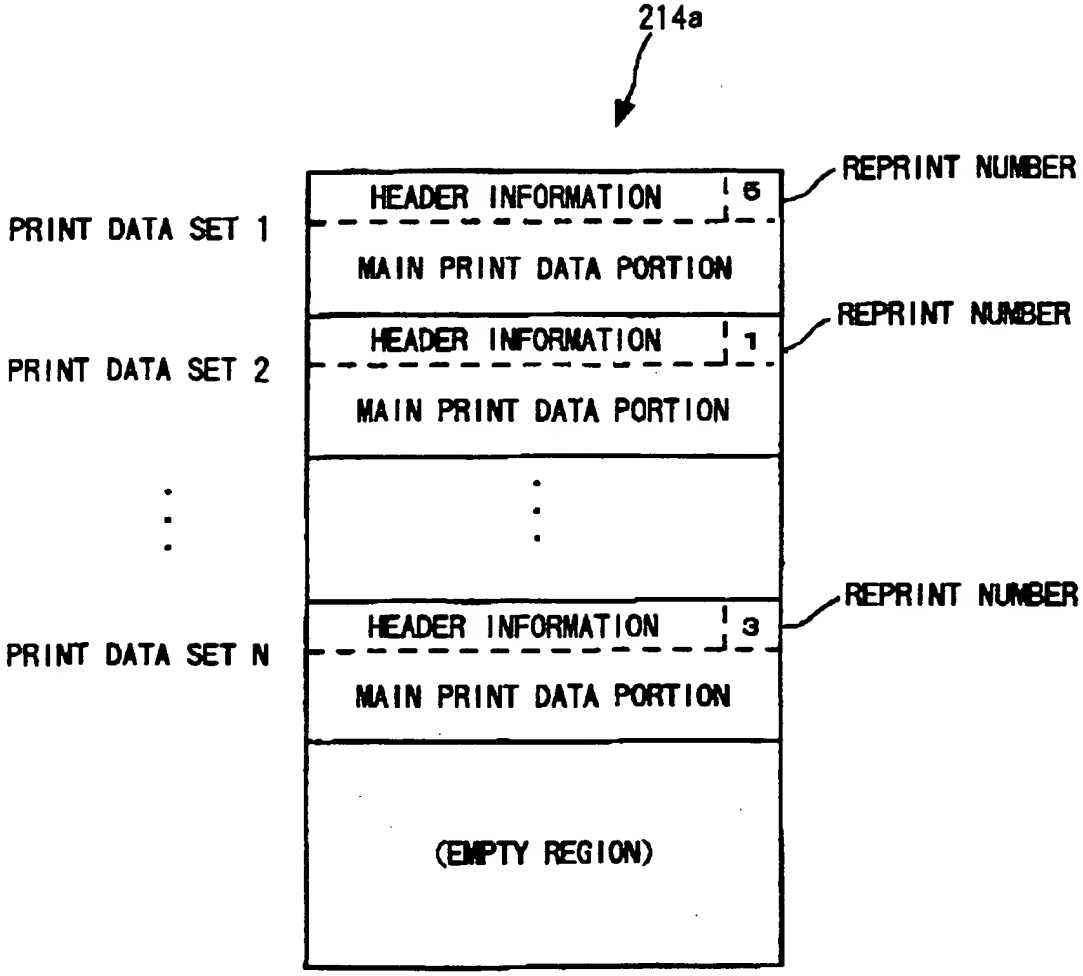
214a
REPRINT NUMBER
HEADER INFORMATION
5
PRINT DATA SET 1
MAIN PRINT DATA PORTION
REPRINT NUMBER
HEADER INFORMATION
1
PRINT DATA SET 2
MAIN PRINT DATA PORTION
REPRINT NUMBER
HEADER INFORMATION
3
PRINT DATA SET N
MAIN PRINT DATA PORTION
(EMPTY REGION)

FIG. 10

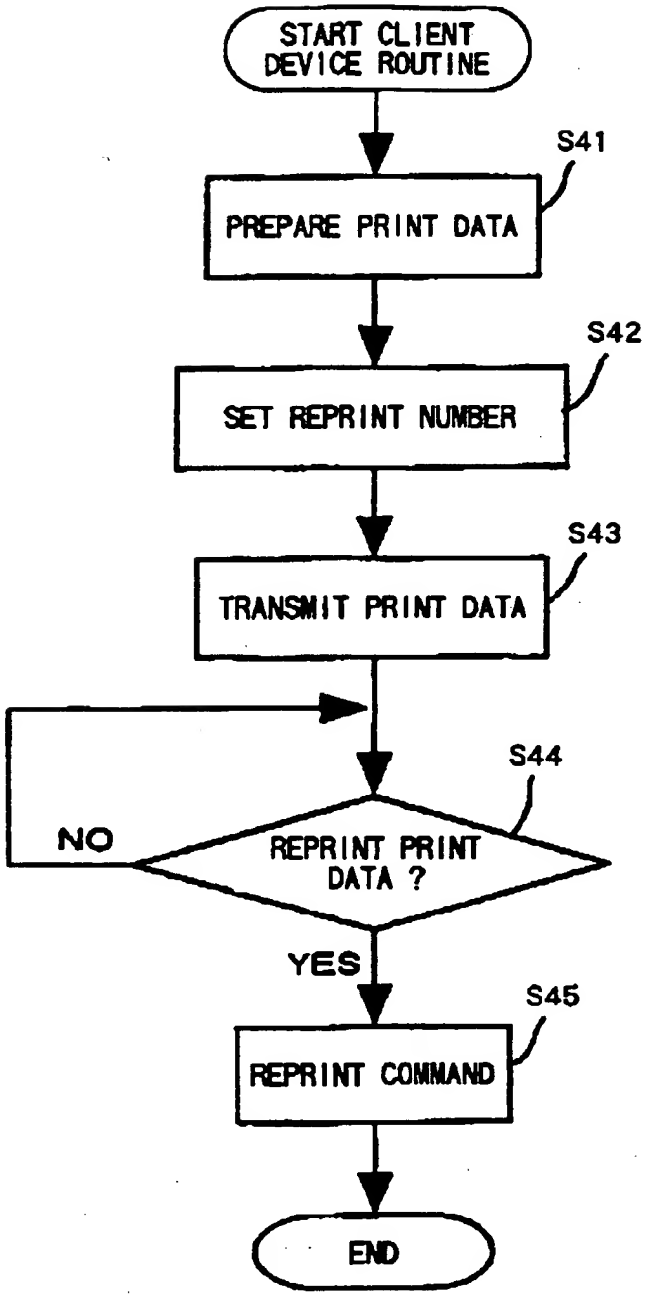
START CLIENT DEVICE ROUTINE
S41
PREPARE PRINT DATA
S42
SET REPRINT NUMBER
S43
TRANSMIT PRINT DATA
S44
NO
REPRINT PRINT DATA ?
YES
S45
REPRINT COMMAND
END

FIG. 11

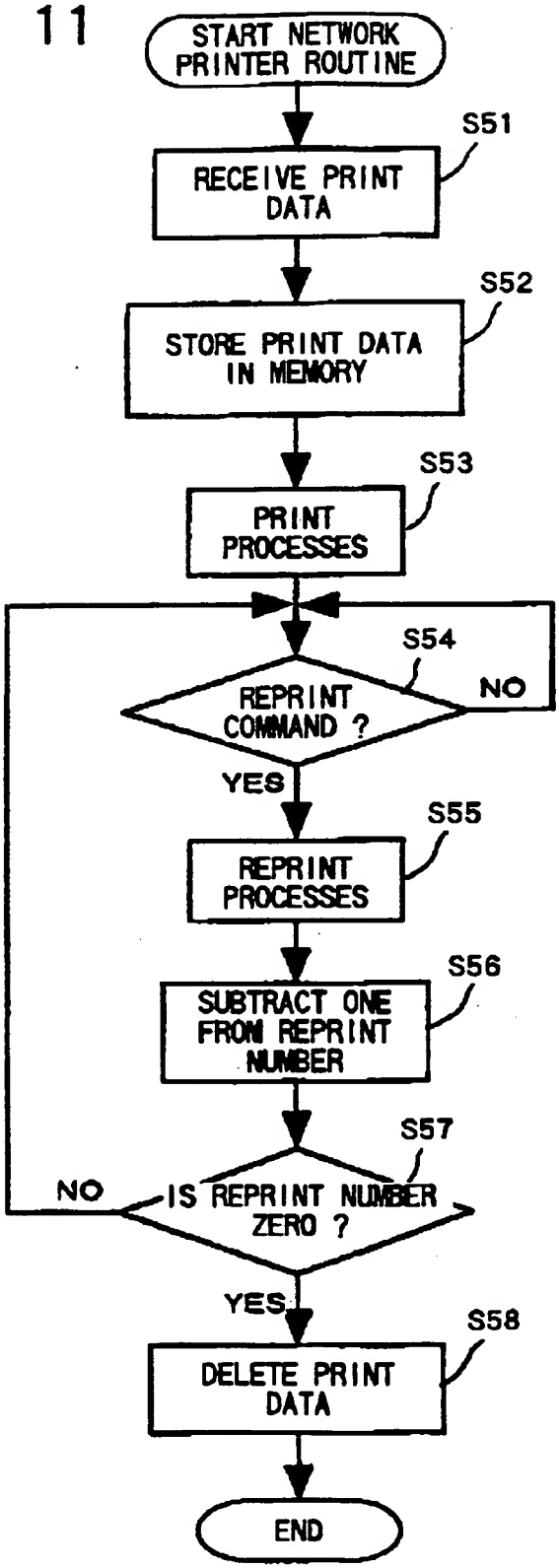
START NETWORK PRINTER ROUTINE
S51
RECEIVE PRINT DATA
S52
STORE PRINT DATA IN MEMORY
S53
PRINT PROCESSES
S54
REPRINT COMMAND ?
NO
YES
S55
REPRINT PROCESSES
S56
SUBTRACT ONE FROM REPRINT NUMBER
S57
IS REPRINT NUMBER ZERO ?
NO
YES
S58
DELETE PRINT DATA
END

FIG. 12

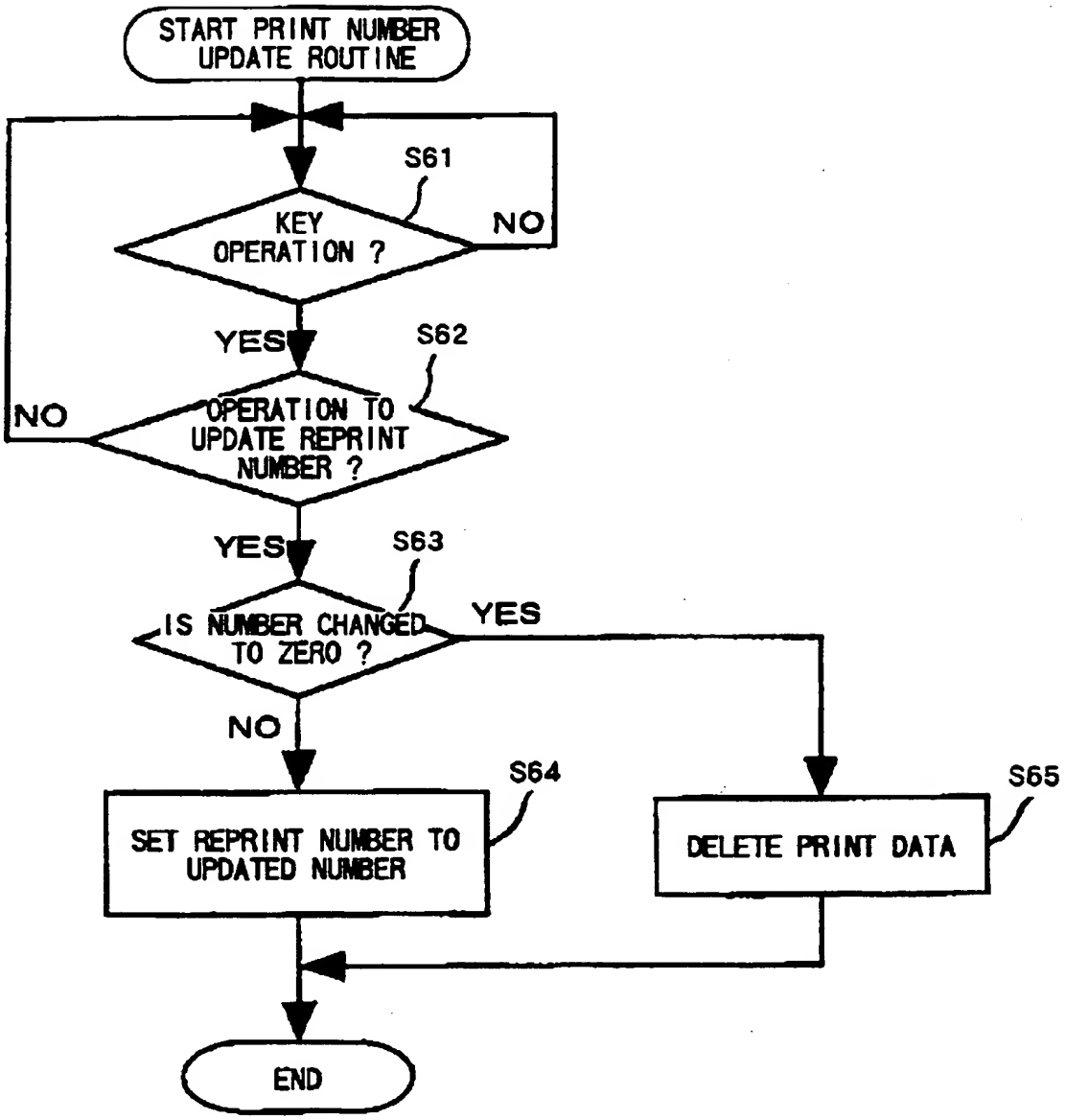
START PRINT NUMBER UPDATE ROUTINE
S61
KEY OPERATION ?
NO
YES
S62
OPERATION TO UPDATE REPRINT NUMBER ?
NO
YES
S63
IS NUMBER CHANGED TO ZERO ?
YES
NO
S64
SET REPRINT NUMBER TO UPDATED NUMBER
S65
DELETE PRINT DATA
END

FIG. 13

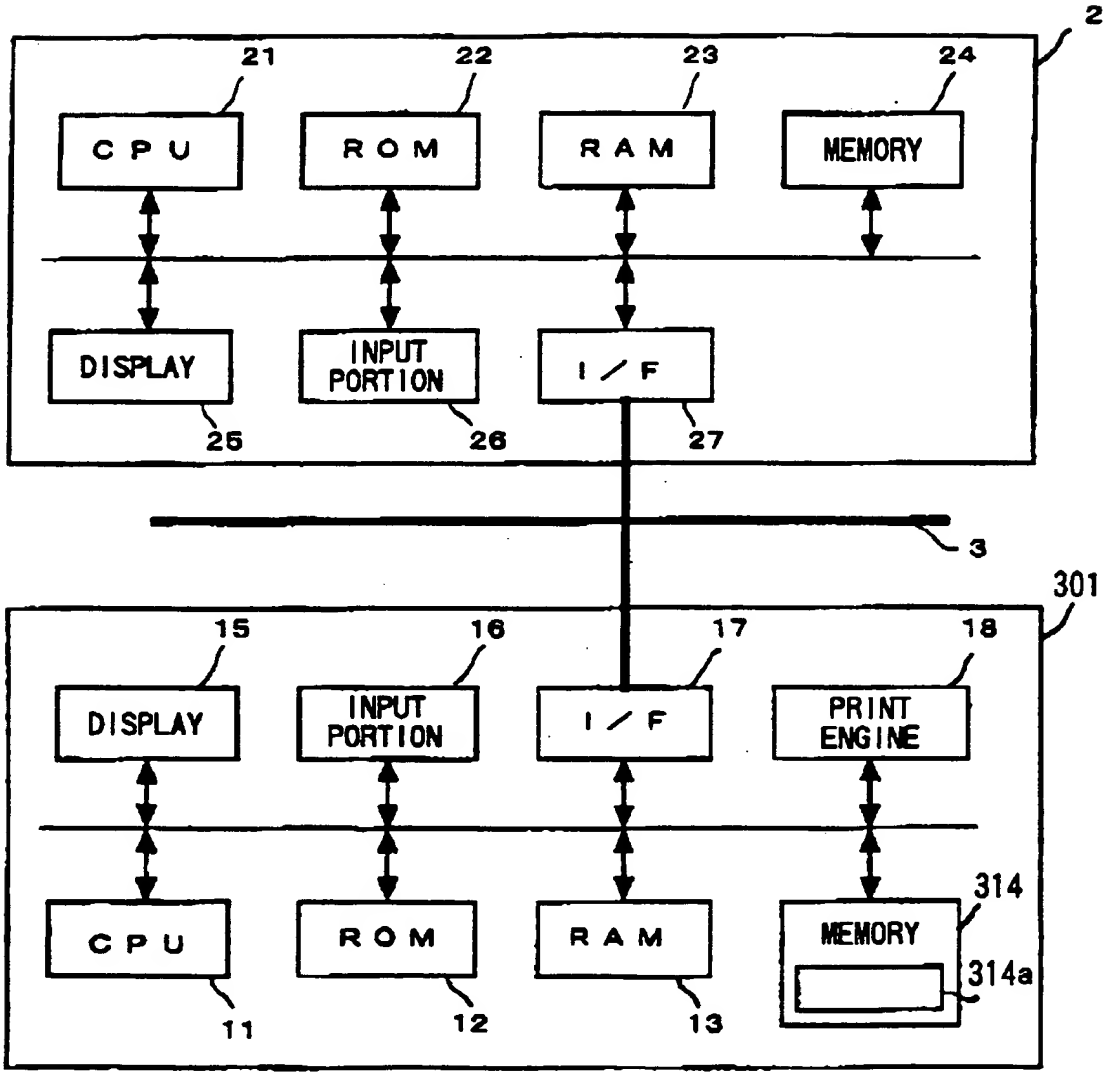
2
21
22
23
24
CPU
ROM
RAM
MEMORY
DISPLAY
INPUT PORTION
I/F
25
26
27
3
301
15
16
17
18
DISPLAY
INPUT PORTION
I/F
PRINT ENGINE
CPU
ROM
RAM
MEMORY
314
314a
11
12
13

FIG. 14

PRINT MANAGEMENT INFORMATION				
PRINT DATA SET ID	SIZE OF DATA SET	WHEN SPOOLED	WHEN LAST PRINTED	WHEN DELETION ACCEPTABLE
DATA a	1 MB	1999/08/23 11:00	1999/08/23 15:03	1999/08/24 17:00
DATA b	3 MB	1999/08/23 12:21	1999/08/23 13:15	1999/08/23 15:00
DATA c	10 MB	1999/08/23 13:12	1999/08/23 13:16	1999/08/30 10:00
DATA d	5 MB	1999/08/23 14:32	1999/08/23 14:50	1999/08/24 16:30
DATA e	8 MB	1999/08/23 15:15	1999/08/23 15:20	1999/08/24 15:00
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮

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FIG. 15

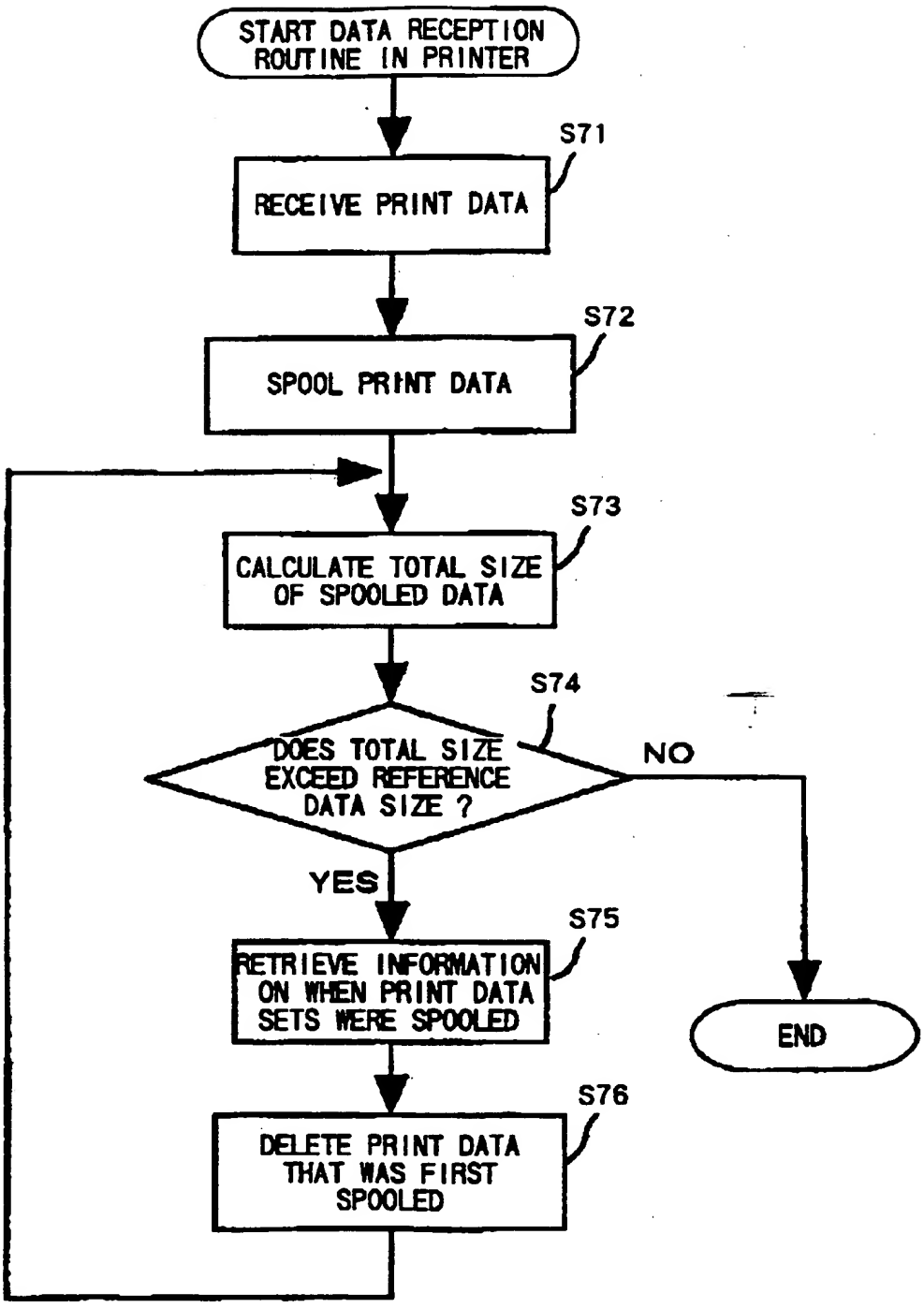

START DATA RECEPTION ROUTINE IN PRINTER
S71
RECEIVE PRINT DATA
S72
SPOOL PRINT DATA
S73
CALCULATE TOTAL SIZE OF SPOOLED DATA
S74
DOES TOTAL SIZE EXCEED REFERENCE DATA SIZE ?
NO
YES
S75
RETRIEVE INFORMATION ON WHEN PRINT DATA SETS WERE SPOOLED
END
S76
DELETE PRINT DATA THAT WAS FIRST SPOOLED

FIG. 16

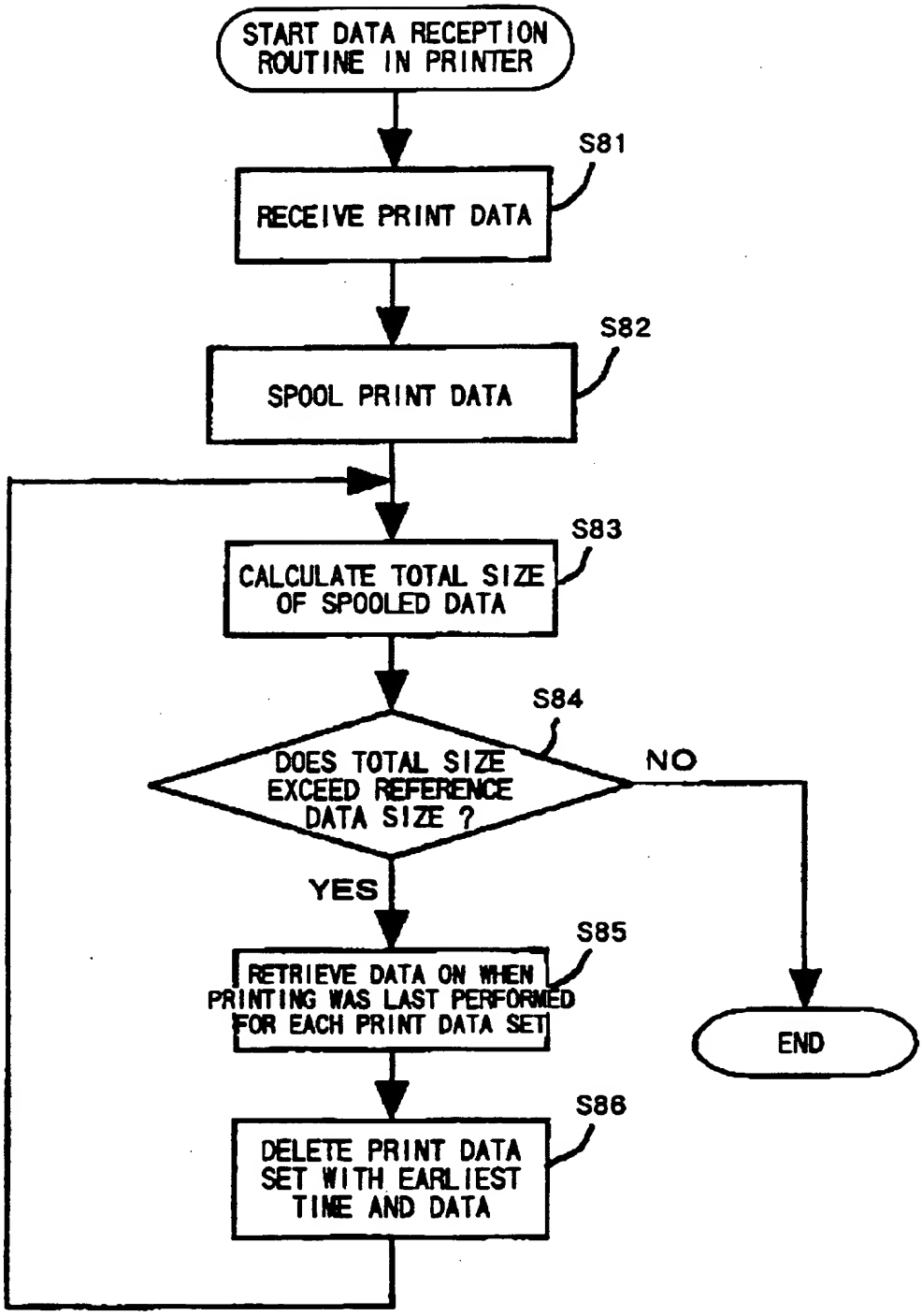

START DATA RECEPTION ROUTINE IN PRINTER
S81
RECEIVE PRINT DATA
S82
SPOOL PRINT DATA
S83
CALCULATE TOTAL SIZE OF SPOOLED DATA
S84
DOES TOTAL SIZE EXCEED REFERENCE DATA SIZE ?
NO
YES
S85
RETRIEVE DATA ON WHEN PRINTING WAS LAST PERFORMED FOR EACH PRINT DATA SET
END
S86
DELETE PRINT DATA SET WITH EARLIEST TIME AND DATA

FIG. 17

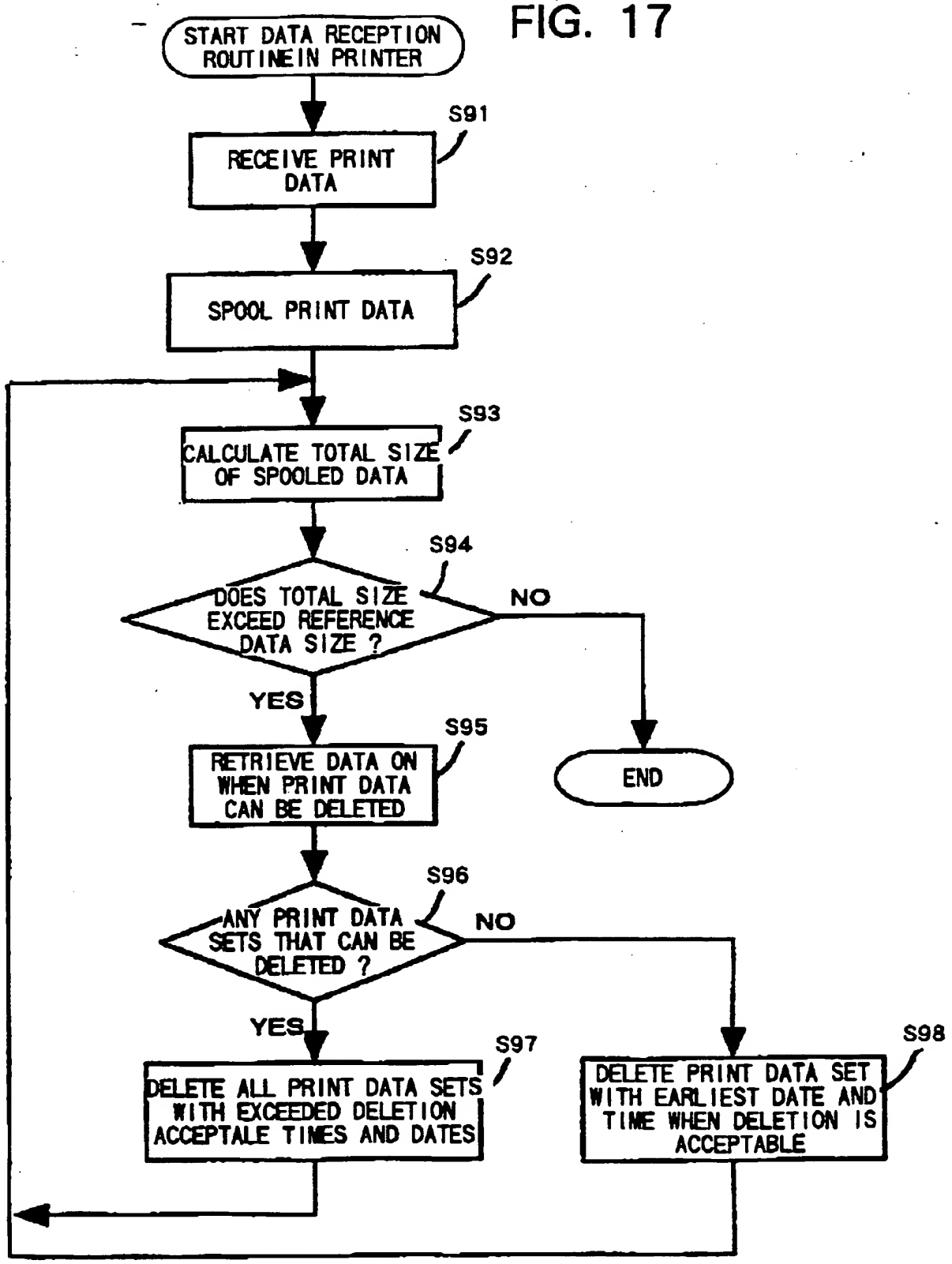

START DATA RECEPTION ROUTINEIN PRINTER
S91
RECEIVE PRINT DATA
S92
SPOOL PRINT DATA
S93
CALCULATE TOTAL SIZE OF SPOOLED DATA
S94
DOES TOTAL SIZE EXCEED REFERENCE DATA SIZE ?
NO
YES
END
S95
RETRIEVE DATA ON WHEN PRINT DATA CAN BE DELETED
S96
ANY PRINT DATA SETS THAT CAN BE DELETED ?
NO
YES
S97
DELETE ALL PRINT DATA SETS WITH EXCEEDED DELETION ACCEPTALE TIMES AND DATES
S98
DELETE PRINT DATA SET WITH EARLIEST DATE AND TIME WHEN DELETION IS ACCEPTABLE

FIG. 18

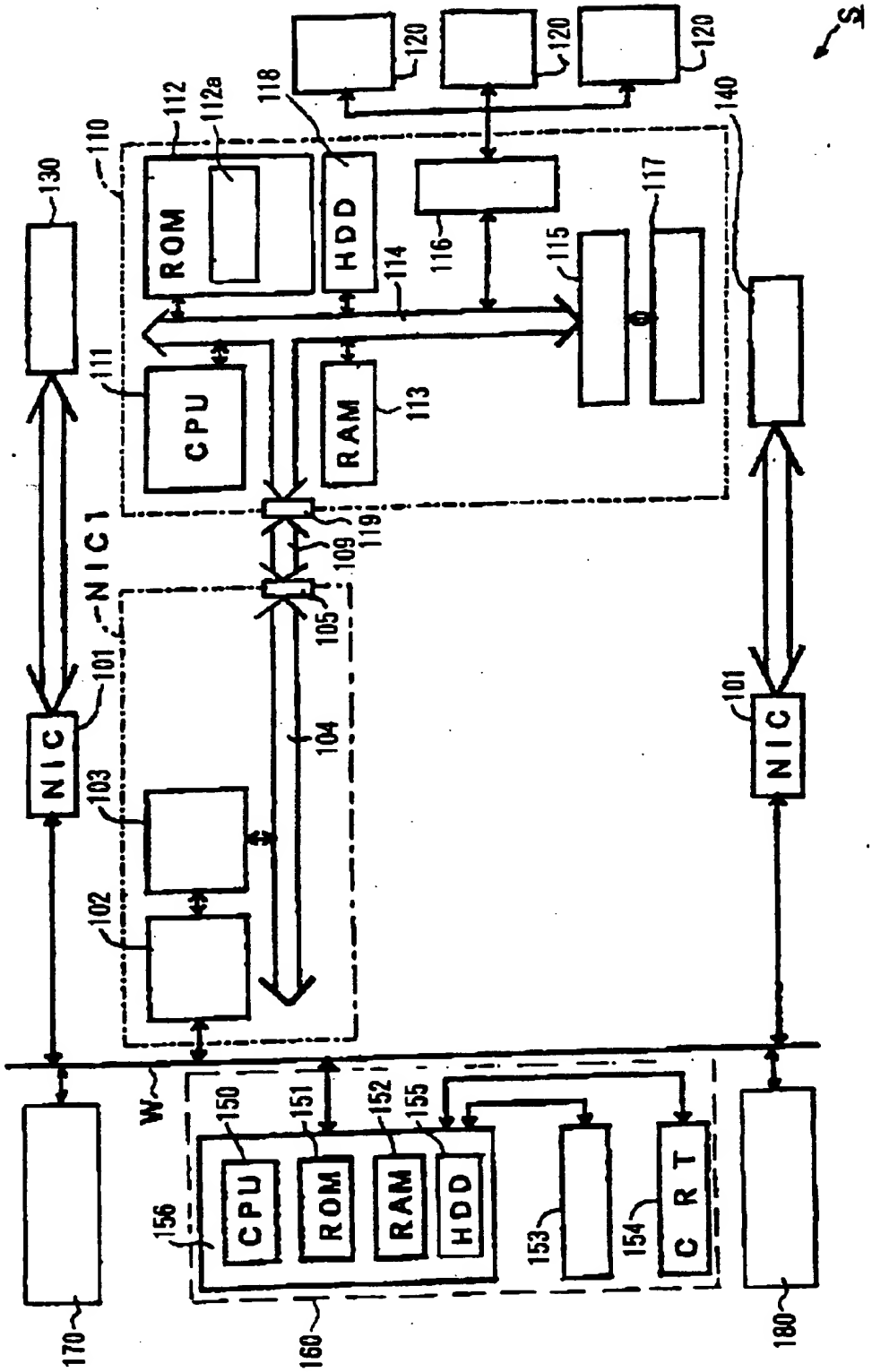

S
120
120
120
140
118
112
112a
110
130
ROM
HDD
117
116
115
114
111
CPU
RAM
113
NIC1
119
109
105
101
NIC
104
103
102
101
NIC
W
150
151
152
155
CPU
ROM
RAM
HDD
156
153
154
CRT
170
160
180

FIG. 19

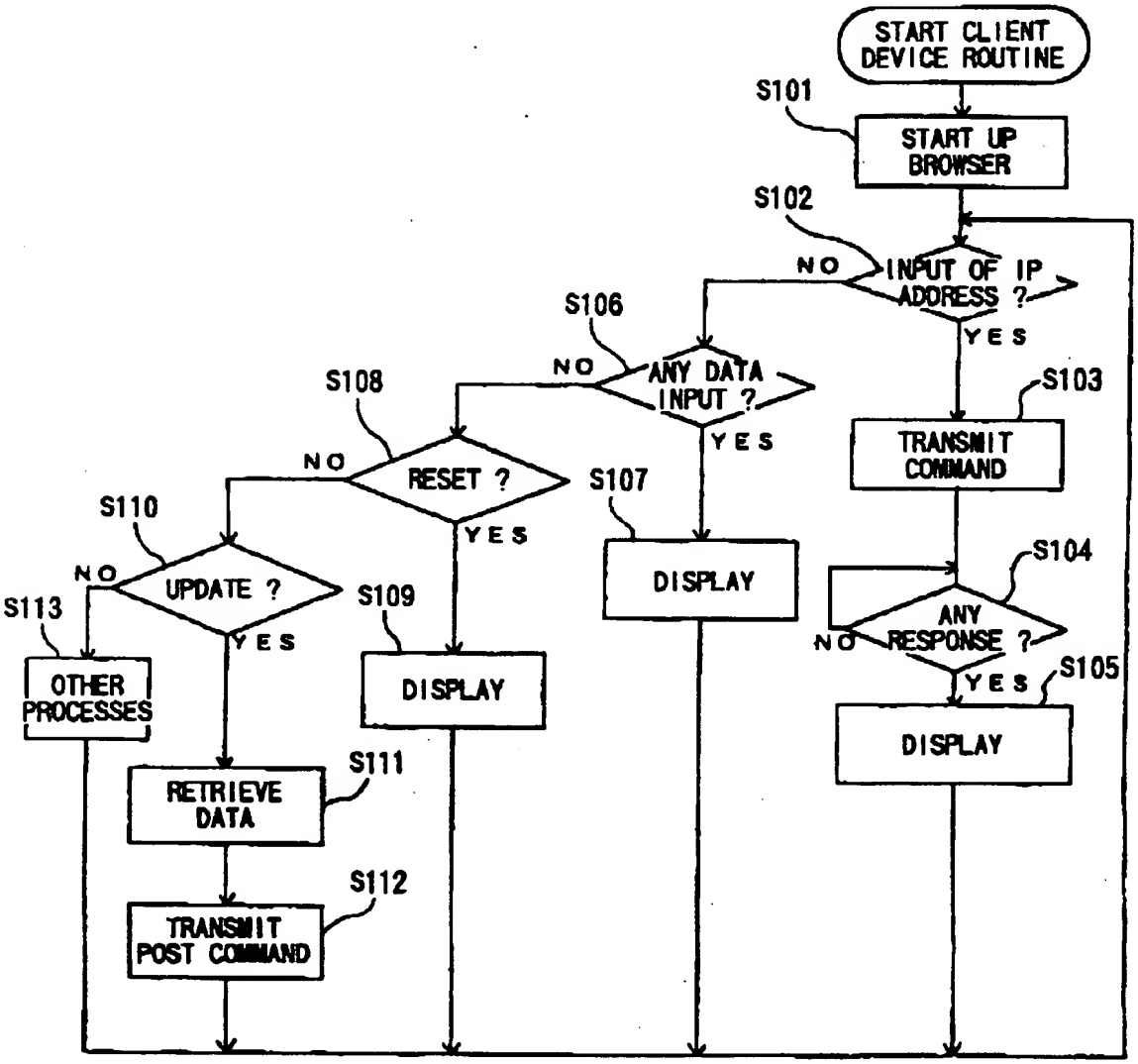

START CLIENT DEVICE ROUTINE
S101
START UP BROWSER
S102
INPUT OF IP ADDRESS ?
NO
YES
S103
TRANSMIT COMMAND
S104
ANY RESPONSE ?
NO
YES
S105
DISPLAY
S106
ANY DATA INPUT ?
NO
YES
S107
DISPLAY
S108
RESET ?
NO
YES
S109
DISPLAY
S110
UPDATE ?
NO
YES
S111
RETRIEVE DATA
S112
TRANSMIT POST COMMAND
S113
OTHER PROCESSES

FIG. 20

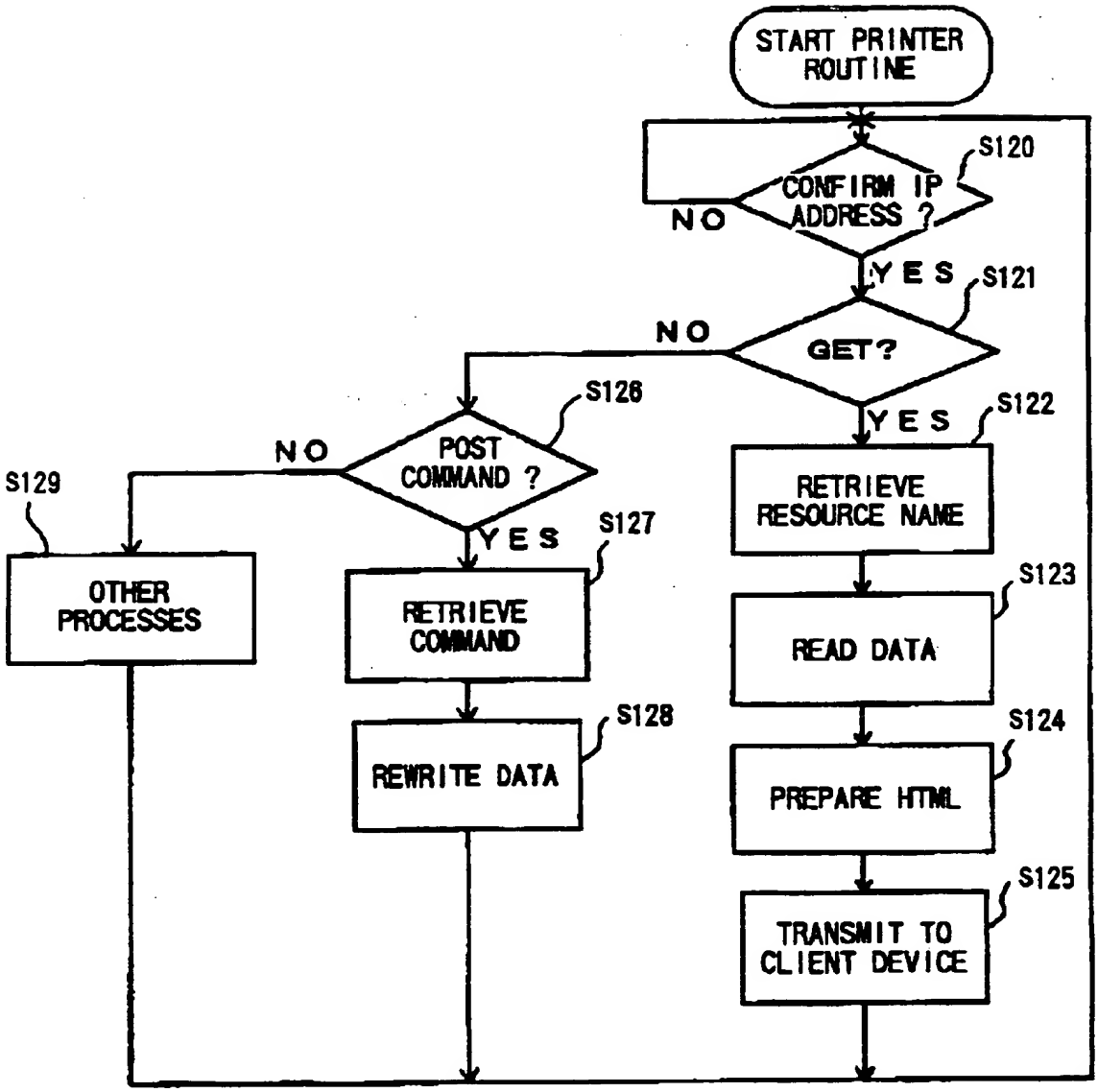
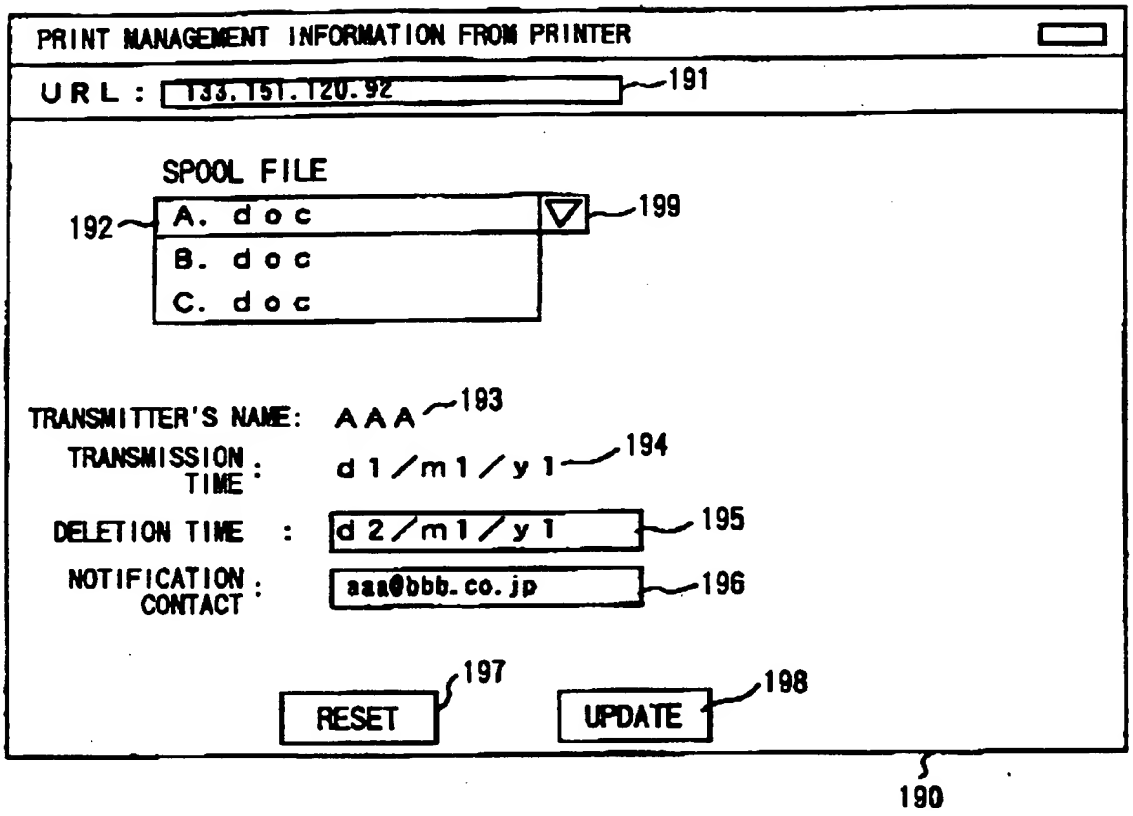

START PRINTER ROUTINE
S120
CONFIRM IP ADDRESS ?
NO
YES
S121
GET?
NO
YES
S122
RETRIEVE RESOURCE NAME
S123
READ DATA
S124
PREPARE HTML
S125
TRANSMIT TO CLIENT DEVICE
S126
POST COMMAND ?
NO
YES
S127
RETRIEVE COMMAND
S128
REWRITE DATA
S129
OTHER PROCESSES

FIG. 21



09/25/2003, EAST Version: 1.03.0002